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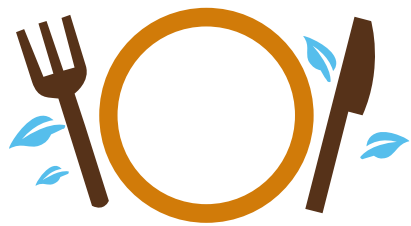
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# Pathogen Light

FAST-TESTING FOR FOOD SAFETY

Yuxiang Chen, PhD

# WHY OUR FOOD KEEPS MAKING US SICK?



## E. coli outbreak in romaine lettuce

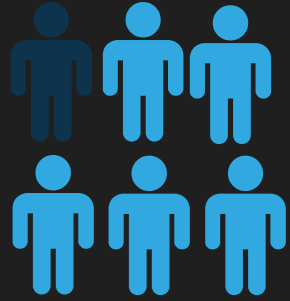


## Listeria outbreak in Blue Bell ice cream





# Foodborne Disease Outbreak: DEADLY & EXPENSIVE



**1 in 6**  
Americans get sick  
every year



**128,000**  
Hospitalizations



**3,000**  
Deaths

**\$55.5B**  
annual impact on US economy



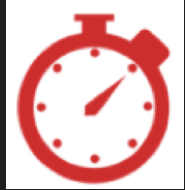
as much as  
**\$2.2M**  
a restaurant loses in business,  
legal fees



up to **60%** in  
reduced sales associated with  
infected food product



# Current Challenges in Food Safety Testing



**time needed for testing** vs **lifespan of food**



**3~4 Days**



**~14 Days**

# Food Supply Chain



Harvesting



Packaging



Transporting



Retailers

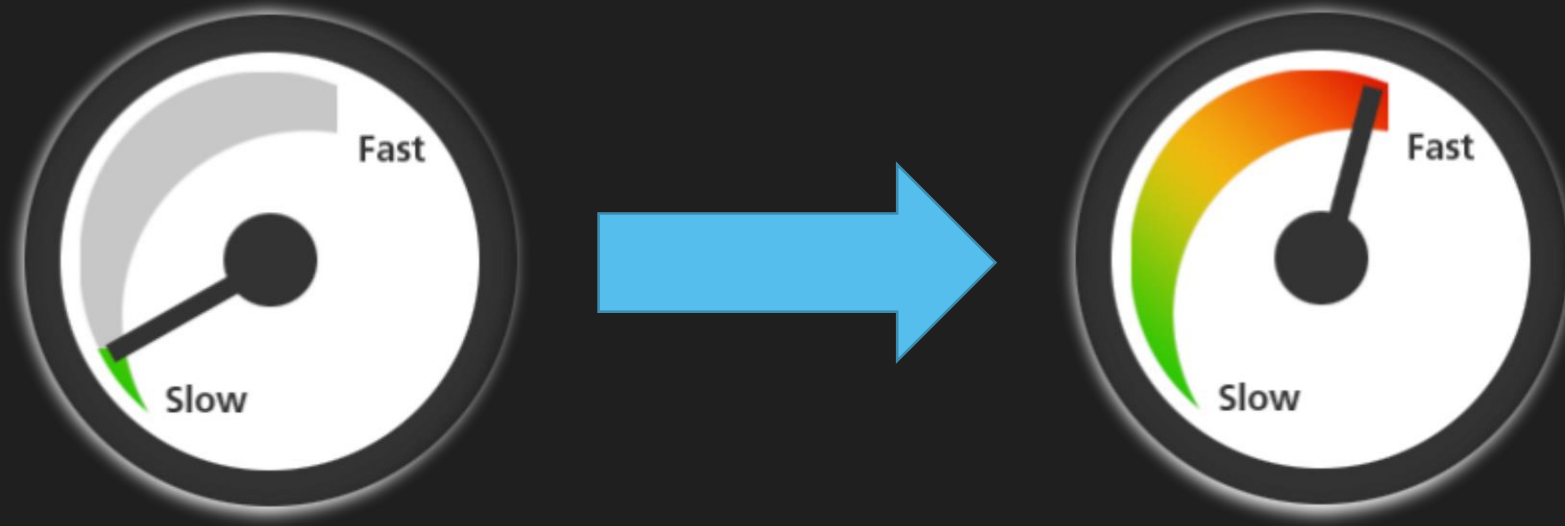


Consumers





# New testing methods are required that can offer rapid testing results

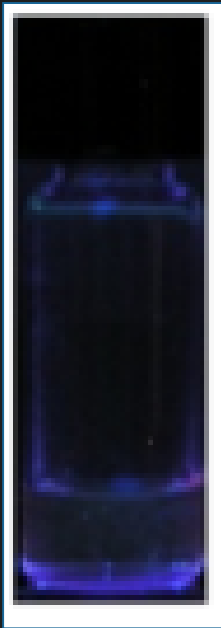


## FDA Food Safety Modernization Act (FSMA)

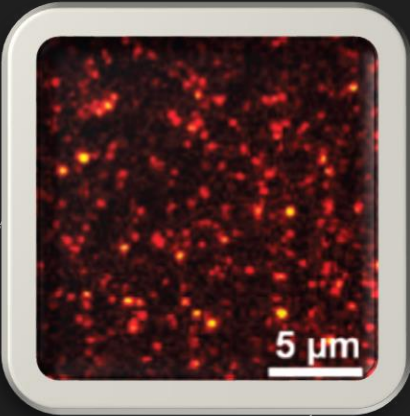
“ is transforming the nation’s food safety system by shifting the focus from **responding** to foodborne illness to **preventing** it.”

# Pathogen Light

fluorescent probe for DNA detection



Bacteria DNA !!



# Four simple steps apply Pathogen Light for food safety testing



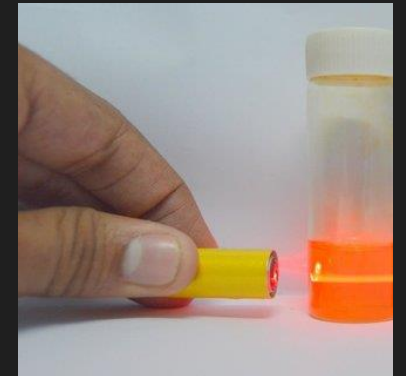
**Extracting DNA from various food samples**



**Filtering out unwanted food residue**



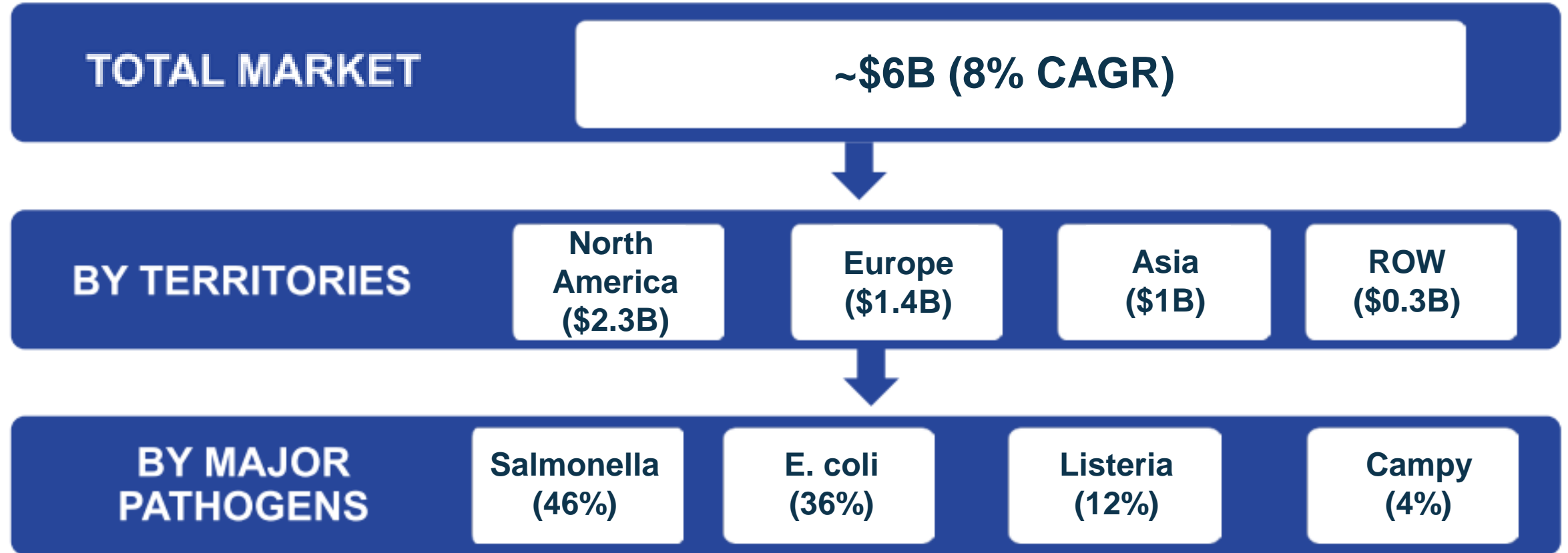
**Mixing with the nanocluster solution**



**Shining light upon the testing solution**

**The total testing time ranges from 2 to 5 hours**

# Pathogen detection related food safety testing global market opportunity



# Technology road map

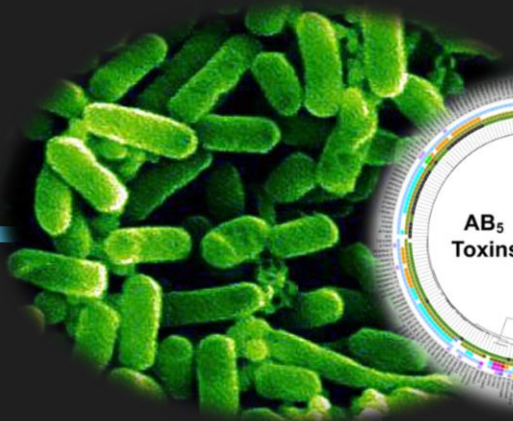
Developing fluorescent probes for *Listeria*



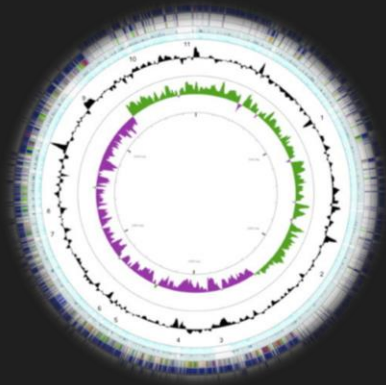
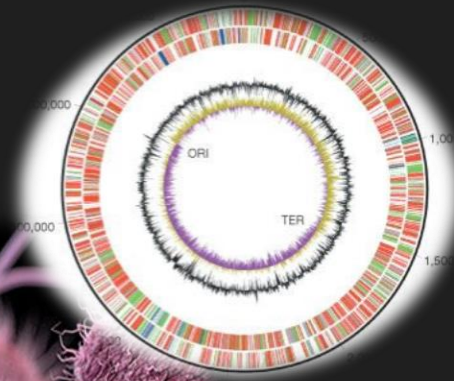
6-12 months



Salmonella strains



Toxic *E. coli* strains



6 months



Color coded multiplex detection



# Go to market plan and exit strategy



licensing



# Team



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# Partners: Research, Manufacture, and Distribution





# Thank You



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